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ABSTRACT

This paper applied findings from studies using the kind of viewing measures used by social scientists, to the relationship between programing and viewership when viewership is measured by means used by producers. Total aggregate viewership and the relationship of viewers' ages to viewership was concentrated on. Effects of competing programs on aggregate viewership (the issue of counter-programing) was not dealt with. The relationship of program form complexity to viewership as measured by ratings was also examined. The expected preference for middle program complexity values in general on the part of viewers failed to appear. Age was found to be strongly related to the amount of viewing, and the degree of program complexity seemed to be moderately related to the age of viewers. Changes in program complexity appeared to cancel one another out. Programs high in complexity were attractive to young adults; however, these individuals did not watch much television. The net effect appeared to be a rather flat response of total audience size to changes in program complexity. Noncommercial programs appeared to be less complex in form than commercial programs and their ratings suffered as a result. Also, program complexity was likely to be related to production cost. (HB)

TELEVISION PROGRAM COMPLEXITY AND RATINGS

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In previous studies we concentrated on the role of the complexity of television program form in the behavior of individual viewers. We investigated both reasons for and effects of viewing, but in either case our focus of interest was the viewer. Since our measures of form complexity are based in part on aspects of program production, it seemed reasonable to investigate possible application of our measures to production of programs for specific audiences. This paper reports the results of our first moves in this direction.

Prior to tackling the problem of aggregate viewership, we will provide some background on our efforts in the direction of explaining viewership of individuals. Our work with the form elements of television programming could be divided into roughly two areas; development of the measure and its validation, and studies of the role of form complexity in viewership. The work has been incremental, with additional analyses added to flesh out new problem areas as they arose.

METHODOLOGICAL STUDIES

The original motivation for studying form aspects of television came from dissatisfaction with available conceptualizations of television content. We felt that a less abstract, more formally developed measure of certain dimensions of programming, which can be lumped under "form", might have as good predictive power to behavioral events as existing content-based schema. A content-free measure of program form was developed using concepts of Information Theory and rudimentary elements of television production. This development involved a fairly straightforward procedure of defining some of the elements of program form which appeared to be related to human information processing, and then operationalizing these concepts in terms of Information Theory entropy scores. Six of these indicators were developed (although there are potentially many others). They were defined as follows:

> Set Time Entropy is defined as the degree of randomness of the time of visual duration of discrete physical locations in a program.
>
> Set Incidence Entropy is defined as the degree of randomness of the appearance of discrete physical locations in a program.
>
> Verbal Time Entropy is defined as the degree of randomness of the time of audible behavior on the part of characters in a program.
>
> Verbal Incidence Entropy is defined as the degree of randomness of the performance of audible behavior on the part of characters in a program.
>
> Set Consraint Entropy is defined as the degree of randomness of the constraints of the discrete physical locations in a program.
>
> Non-Verbal Dependence Entropy is defined as the degree of randomness of the time of non-verbalization by the characters in a program.

To validate these indicators 168 shows from 58 prime time series were scored and the resulting data factor analyzed. We named the two independent factors which emerged Dynamics and Unfamiliarity. Dynamics appeared to be related to audio-visual activity, while Unfamiliarity appeared to be related to persistence of locations and characters on the screen and/or soundtrack. These two factors have been compared to other measures of television content and form.

Initially, our measure was compared to two measures of program content: a perceived violence scale developed by Greenberg and Gordon (1971), and a show category scheme used by McLeod, Atkin and Chaffee (1971). Our two-dimensional measure was found to co-vary strongly with the violence scale, and to produce equivalent or better non-random viewing patterns than either content measure. Substantial detail of this stage of development and validation is available elsewhere (Watt and Krull, 1974).

We also compared our measures to a measure of program form developed from a different perspective (Krull, Watt and Lichty, 1974). The latter is based on the organization and timing of program production elements and views programming more from the position of the produced (Lichty and Ripley, 1970; Lichty, Banks and Kois, 1973).

We found that the production based measure also produced two dimensions in factor analysis, and that it and our measure of program form co-varied strongly along both dimensions. These sets of program form measures produced similar non-random viewing patterns on two samples of viewers, indicating that viewers tend to choose programs with consistent form characteristics. Other similarieies between these measures in viewing patterns are discussed in the next section.

We do not regard our measures on program form as exhaustive. We would like to add additional dimensions and are currently engaged in developing ways of doing so. However, relevant dimensions may be found in part through analysis of viewership, an area in which we have done the work described next.

VIEWERSHIP OF PROGRAM COMPLEXITY

Program Selection

We have already noted that we found program selection on the basis of complexity to be non-random. That is, viewers appear to pick programs with clustering complexity values from among the range of values available. Our rationale leads us to argue that viewers prefer certain levels of program complexity on the basis of the information processing levels they afford.

We have extended this rationale to predict relationships between characteristics of viewers such as their ages and education, and complexity viewing. We found age and complexity viewing generally were curvilinearly related with a maximum for young adults. Education was found to relate to complexity viewing in a linearly positive way (Krull, Watt and Lichty, 1974).

Age was also a major concern in an experiment reported by Wartella and Ettema (1974) and elaborated upon by Wackman and Ward (1973). Their interest was in determining characteristics of children's information processing of television commercials varying in stimulus complexity. They predicted that differences in children's attention to commercials would be a function of the cognitive development. Cognitive development was expected to be related to age.

Using commercials scored on the six Information Theory indicators defined previously, they found moderately convincing evidence for their linkage. It is interesting to note that factor analysis of scores for commercials produced a pattern different from that for television series. The commercials also separated into two distinct factors, but these seemed to be distinct along auditory and visual lines. The auditory factor was found to have a greater effect on attention to commercials than the visual factor.

Effects of Viewing Complexity

One area of television effects which has generated much interest is the relationship between viewing, and child and adolescent aggressiveness. The usual presumption is that the effects of viewing are due largely to program content. A secondary analysis was carried out on data collected by McLeod, Atkin and Chaffee (1971). We found that the form complexity in programs viewed and the violence in programs viewed provided very similar zero-order predictions to the aggression of viewers. When covariance between form complexity and violence were statistically controlled, the relationships between both violence and form complexity and aggression remained statistically significant (Krull and Watt, 1973). This seems to indicate that both program form and violent content are independent predictors of aggression of viewers.

The mechanism by which form complexity was postulated to be related to aggression is that of arousal, as articulated by Tannenbaum (1971). When placed in an aroused state the viewer was expected to be more likely to carry out overt behavior. If his social environment were conducive to aggression, the viewer would be more aggressive. In Tannenbaum's view, this arousal is produced by emotional reaction to violent content; in our conceptualization it can be due to the increased cognitive effort of decoding complex form elements.

THE CURRENT STUDY

There seem to be a number of areas of application of our measures and research findings to the producer's situation. At this time we cannot evaluate the difficulty of attempting to modify program production to attain certain complexity scores on our measures; nor can we deal with the relationship of program form to program content. However, we can explore the role of program complexity in viewership as it relates to the kinds of measures of viewership to which the producer would have access. Let us begin by discussing some aspects of the differences between kinds of measures of viewership.

Measures of Viewership

Measures Used by Social Scientists. Among the measures of viewing typically used by social scientists are those we have included in the studies described above. These measures involve responses of individuals to questions regarding their habitual viewing patterns. These responses generally are then scaled for intensity (the frequency of viewing individual programs), and these scaled responses are summed over all the shows viewed. When viewers are compared to one another, it is on the basis of a pattern of viewing involving several shows and different frequencies of selection. When this procedure is used, the characteristics of individual shows are of less concern than are the characteristics of viewers choosing a particular pattern.

Measures Available to Producers. Many producers are concerned with how their shows compare to other shows with respect to viewership. However, their concern is more with how particular characteristics of their programs affect aggregate viewership than with how the particular characteristics of individual viewers affect program choice. This is, in effect, the reverse of the problem of the social scientist.

The measures of viewership available to producers seem to mirror this difference in concerns. The most familiar measurement of viewership is an aggregate one, ratings. Ratings differ from the viewing measures described in the foregoing section in several ways.

Ratings provide a measure of how many people watch a given show over a certain period of time. They do not indicate what the pattern of viewership of these people is except that the numbers are based on unduplicated viewership. As a result, ratings are more a measure of total reach of viewership than of viewership intensity.

Because ratings do not provide much information regarding patterns of viewership, producers may have some idea as to techniques which will increase or decrease audience size, but little about shifts in audience. For example, audience size may stay the same after program production changes, but the audience may be composed of substantially different types of people. This kind of audience change may be of interest to producers in certain instances and additional information regarding viewers could be useful here. Two kinds of information currently available to producers are the numbers of viewers of given ages and sexes who tune in.

In this paper we will try to apply findings from studies using the kind of viewing measure used by social scientists to the relationship between programming and viewership when the latter is measured by means used more by producers. We will be concentrating on total aggregate viewership and on the relationship of viewers' ages to viewership. We will not deal with the effects of competing programs on aggregate viewership (i.e., the issue of counter-programming).

Program Form Complexity and Aggregate Viewership

Previously we have argued that individual viewers prefer particular levels of program complexity and choose programs accordingly. This reasoning could be extended to aggregate viewership. If individuals prefer a given level of program complexity, similarities among individuals with respect to reasons for viewing should produce similar complexity scores in their program selections.

Since viewers have different information processing capabilities, there may be an optimum point in program form complexity. This point would likely be somewhere above where those able to process information quickly become bored and below where those who process information slowly cannot follow the program. As a result one would expect the largest aggregate viewership to be near the middle of the form complexity values for the shows available.

Put formally:

> H1: The relationship between program form complexity and ratings for commercial programs is expected to be curvilinear with a peak in ratings for middle complexity values and decreasing ratings to either side.

If social science measures of viewing were used, greater viewership in the predicted relationship could occur through increasing frequency of viewership of a small number of individuals, increasing the number of people who watch at some nominal level, or both. When ratings are used to measure viewership only an increase in the number of people tuning in will produce an apparent increase in viewership. This feature of rating would reduce the predicted effect of program preferences on viewership. One other feature of ratings may reduce the effect as well.

Since shows with small numbers of total (unduplicated) viewers are likely to be dropped by the networks, the programs from which viewers can select are likely to be near the optimum complexity level for all viewers. This means that the levels of program complexity available on commercial television are likely to be restricted to a small range relative to the possible range of complexity values. As a consequence, one would only see the top of the predicted viewing curve.

The situation may be slightly different for public television, a point to which we shall return.

Age and Aggregate Viewership of Program Form Complexity

So far we have assumed that nothing is known about viewers. Since viewers are likely to vary with respect to both the motivations and abilities they bring to the viewing situation, it is likely that an undifferentiated estimate of viewership of programs of varying complexity embodies a high degree of error. If one had more information about viewers one should be able to predict their viewing more accurately.

We have argued that the information processing capabilities of viewers are important in explaining viewership. Viewers should be drawn to programs appropriate to their capabilities. If a measure of this capability were available, it should be possible to make viewing predictions more specific.

Age is a variable available to producers through ratings. In a previous study we argued that there is a relationship between age and the kind of information processing relevant to program complexity viewing. The shape of the relationship between age and information processing capability appears to be curvilinear with a peak for individuals in their twenties and decreasing ability to either side of this age range (Bayley, 1968; Horn and Cattell, 1966). One would expect the relationship between program complexity viewing and age to follow the same pattern. That is, viewers in their twenties should prefer programs with the highest complexity scores.

We have tested this hypothesis on data based on individual viewing patterns and have found some support. It seems possible to extend the rationale to aggregate viewership as well. One could argue that, although there is substantial variability in mental ability of any given age group, the average mental ability of groups of viewers should move roughly the same way with age as do the mental abilities of the individuals in the groups. If individual viewers choose programs on the basis of their mental abilities, and this ability varies with age, the choice of programs on the part of aggregates of viewers should vary with age in the same way. In other words, the complexity of programs watched by aggregates of viewers would vary with age in the same way as the mental abilities of these aggregates. Put formally,

> H2: The relationship between program form complexity ratings and viewers' ages is curvilinear with a peak in complexity viewing for viewers in their twenties.

This hypothesis can be tested for commercial programs only. The ratings for public television shows are too low in general to produce reliable age breaks.

Age and The Amount of Viewing.

Data based on individual viewing patterns indicates that the amount of viewing varies with the age of viewers. This variation would substantially alter the aggregate viewing scores of different age groups in a way which makes comparisons of choices of programs invalid. Young adults, who appear to view relatively little, would apprear to have lower viewership of programs high in complexity than other groups even though they preferred more complex programming. In operationalizing complexity viewing for the preceding hypothesis we instituted a control for the amount of viewership. If this control was warranted, one should be able to test for the relationship between age and the amount of viewing. Put formally,

> H2: The relationship between age and the amount of aggregate viewership should be curvilinear with a peak for adolescents and middle-aged viewers and a dip in viewership for young adults.

Differences between Commercial and Noncommercial Programs.

One difference between commercial and noncommercial programming is that noncommercial programs may be kept on the air even though viewership is small. This would mean that noncommercial programs could deviate substantially more from the optimum level of program complexity for groups of viewers before being dropped. However, the range of complexity values of noncommercial programs may be constrained by another variable, cost.

The level of program complexity is a function of the number of program elements in such a way that complexity increases with addition of program elements. For example, complexity goes up as additional characters and sets are added to a program. Such additions generally also increase the cost of program production. Since noncommercial producers have relatively little money, the programs they produce are likely to be lower in complexity than commercial programs. Put formally,

> H4: Noncommercial programs are lower in complexity on the average than commercial television programs.

We have hypothesized that the relationship between total viewership and program complexity is curvilinear for commercial television programs. Since noncommercial programs are probably lower in complexity than commercial programs, it is also likely that viewership of noncommercial programs would fall on the lower tail of the viewing curve predicted. In other words, ratings would increase with program complexity for noncommercial programs. This can also be phrased as a hypothesis:

> H5: As the form complexity of public broadcast programs increases, ratings increase.

METHOD

Show Samples

The sample of commercial television shows scored for entropy consisted of series broadcast in prime time during the 1970-71 season. Specials sports and movies were not included. Three shows in each series were coded. Series scored for entropy and for which we have ratings data total 56.

A smaller sample of 7 nationally distributed noncommercial series was drawn from the 1971-72 season to provide representation of the variety of programs available during prime time. Again, up to three shows in each of the seven series were coded.

In both cases shows were coded with a specially constructed machine described elsewhere (Watt and Krull, 1974). Check-coding indicates high intercoder reliability.

Factor Analysis of the Entropy Indicators. The indicators of entropy for the sample of 58 series drawn in 1970 were founded to be highly intercorrelated. Factor analysis yielded two factors we call Dynamics and

Unfamiliarity. This factor analysis was considered to produce a reliable estimate of the population values, and was used to produce factor scores for both commercial series coded since 1970 and for the noncommercial series used in this study. The resulting factor scores for commercial series are available elsewhere (Watt and Krull, 1974; Krull and Watt, 1973; Krull, Watt and Lichty, 1974). Factor scores for the noncommercial series are given in Appendix A.

Viewing Samples

The aggregate viewing scores were based on national ratings figures for October, 1970. This time period was chosen because the viewing data in our original studies were collected at that time. Shows available for viewing by both samples would have been the same and should provide a good basis for making comparisons of viewing patterns.

Age of Viewers

Ratings services break their projections into a number of age categories. The ones used in this study were: 2-5, 6-11, 12-17, 18-24, 25-34, 35-49, 50+. In the first six of these categories we assumed the category mid-point would adequately describe the ages of the viewers in it. For the last catagory we approximated the median age of viewers from census data. The resulting values are: 3.5, 8.5, 14.5, 21.0, 29.5, 42.0, 62.3. While the categories are not equally spaced, and although several categories are fairly large, a curve fitting procedure should be able to produce a reasonably good fit using these points.

Viewing Indices

Total Aggregate Viewership. The measure of total virwership undifferentiated by age was based simply on the average total number of American households estimated to be tuned in to a show during a four week period. For hour-long shows the figure for the average viewership of the two halfhour segments was used.

We did not use audience share as a measure because we did not include controls for program scheduling.

The Corrected Viewing Index. The Corrected Viewing Index was constructed to test for the relationship between age of viewers and the amount of viewing. First, we introduced a correction for the size of the age categories based on 1970 census data. The correction factors are given in Appendix B.

Second, since we planned no test for sex differences in viewing, the viewing scores for males and females (per 100 households) were summed. Third, scores for the numbers of viewers per 100 households were reduced to raw numbers of viewers by correcting for the number of households. One score for each show for each age group was produced. An example of a computation for the 18-24 year-old-group is given below.

$$\text{Viewing Index}_{\text{Age } 18\text{-}24} = \frac{(\text{Males} + \text{Females}) \times \#\text{ of Households}}{100} \times \text{Correction Factor}_{\text{Age } 18\text{-}}$$

Since seven age breaks were used the 56 series provided 392 data points for this index.

The DYNUFAM Viewing Indices. The complexity viewing indices were built on the Corrected Viewing Index which summed the scores for male and female viewers and corrected for the sizes of the age categories. Two additional controls were added. Differences among age groups in the amount of viewing were eliminated by standardizing viewership on a within-age-group basis:

$$Z_{\text{Age}_i} = \frac{\text{Corrected Viewership}_{\text{Age}_i} - \text{Mean Viewership}_{\text{Age}}}{\text{Standard Deviation of Viewership}_{\text{Age}}}$$

where: Z_{Age_i} : is the standard score of the number of viewers in an age group watching a show.

$\text{Corrected Viewership}_{Age_i}$: is the corrected viewing score for a show.

$\text{Mean Viewership}_{Age}$: is the mean number of corrected viewers in an age group for all shows.

$\text{Stand. Dev. of Viewer.}_{Age}$: is the standard deviation of corrected viewers in an age group for all shows.

Since seven observations (one for each age group) are taken on each show, differences between the age groups will be masked by the multiple measurements. This effect was eliminated by comparing the amount of viewing of a show by an age group to the viewing of that show by all viewers. Again, this is done by using standard scores:

$$\text{Standardized viewing (corrected for multiple observations)} = Z_{Age_i} - Z_{Total_i}$$

where: Z_{Total_i} : is the standard score of the number of total viewers for particular show.

The form complexity scores are already standard scores and were multiplied by the standardized viewing scores to produce complexity viewing indices. Indices were produced for each of the dimensions of program complexity. So that tables could be read standard scores rather than standard scores squared (this made it possible to isolate the portion of graphs in which 67% of the cases lay), the square roots of these scores were used. The signs of the scores were retained. The computation for the Dynamics and Unfamiliarity were as follows:

$$\underline{\text{Dynamics Viewing Score}_{\text{Age}_i}} = \pm \left(Z_{\text{Dyn}_i}\left(Z_{\text{Age}_i} - Z_{\text{Tot}_i}\right)\right)^{\frac{1}{2}}$$

where: Z_{Dyn_i} : is the Dynamics score for a particular show.

$$\underline{\text{Unfamiliarity Viewing Score}_{\text{Age}_i}} = \pm \left(Z_{\text{Unfam}_i}\left(Z_{\text{Age}_i} - Z_{\text{Tot}_i}\right)\right)^{\frac{1}{2}}$$

These indices provide a measure of how much the viewers in each age group preferred given shows (and their complexity) as compared to all viewers.

Hypothesis Testing

Tests of curvilinear hypotheses were made using polynomial regression. Second or third order polynomial would be expected to give the best fit to hypotheses predicting a single peaked curve (age vs. complexity viewing, and complexity vs. total aggregate viewing). A third or fourth order polynomial would be expected to give the best fit for the relationship between age and amount of viewing (a curve with two peaks).

The difference between commercial and noncommercial series on complexity was tested with a pair of simple t-tests. The relationship between complexity of noncommercial television shows and ratings was tested using product-moment correlations. Polynomial regression was not used since the fit was expected to be fairly linear. Age differences could not be tested for nomcommercial programs.

RESULTS

Program Complexity and Aggregate Viewership

Figure 1 shows the results of the polynomial regression of Aggregate Viewership on program complexity. Separate runs were made for Dynamics and Unfamiliarity. The curves produced are different in shape, but neither fit is statistically significant.

While a sample size of about 200 series would have raised the F-values to statistical significance, the curve shapes are not particularly encouraging given the hypotheses (H1). Unfamiliarity in particular shows a large dip in viewership for middle values in the area where a maximum was expected.

Age of Viewers nd the Amount of Viewing

Figure 2 shows the regression of Corrected Number of Viewers on the Age of Viewers. The curve fitted is strongly significant ($F = 6.13$; $p < .001$) and shows the shape expected (H3). Viewing drops after puberty and stays fairly low through young adulthood. Apparently the control for the amount of viewing in the complexity viewing indices was justified.

Age of Viewers and Complexity Viewing

Figure 3 shows the regression of Dynamics Viewing on Viewers' Ages. The fitted curve is statistically significant ($F=5.36$; $p < .005$) and shows approximately the shape expected (H2). The dashed lines indicate the area inside which 67% of the cases lie.

Figure 4 shows the regression of Unfamiliarity Viewing on Viewers' Ages. The fitted curve is barely significant ($F=2.063$; $p < .10$) and does not conform in shape to expectations (H2). The peak in Unfamiliarity Viewing appears to be in the middle teens.

Differences Between Commercial and Noncommercial Programs.

Differences in Complexity. Table I indicates that, as expected, noncommercial television programs are less complex in form than are commercial programs (H4). The difference does not reach significance for Dynamics, but the difference is strongly significant for Unfamiliarity ($t = -5.71$; $p < .005$) even with the small statistical power provided by the size of the noncommercial show sample.

Program Complexity and Ratings. There appears to be an association between program complexity and ratings for noncommercial programs (H5). The figure for Dynamics does not reach statistical significance with this sample size, but the relationship between Unfamiliarity and ratings seems to be rather strong ($r = .85$) and is statistically significant even with the small power provided ($p < .02$).

DISCUSSION

Program Complexity and Aggregate Viewership

Our objective in this study was to examine the relationship of program form complexity to viewership as measured by ratings. We had developed rationales for relationships on the basis of findings from studies of the viewing patterns of individuals.

The expected preference for middle program complexity values in general on the part of viewers failed to appear. The relationships found were neither statistically significant nor of the shape expected. Other relationships did turn out pretty much as expected, however. Age was found to be strongly related to the amount of viewing, and complexity viewing (particularly for Dynamics) seemed to be moderately related to the age of viewers. The combination of these findings presents and interesting picture.

Changes in program complexity appear to cancel one another out. Programs high in complexity (mainly for Dynamics) are attractive to young adults. However, these individuals do not watch much television. Making programs high in complexity may produce changes in audience composition but is likely to result in no change in audience size or a small decrease if anything. Making programs very low in complexity (particularly Unfamiliarity) may attract a lot of younger viewers, but would produce decreases in viewing by a broad span of adults.

The net effect appears to be a rather flat response of total audience size to changes in program complexity. Producers may have to sacrifice either audience size or audience composition if they want to reach a specific audience goal through program complexity.

The Special Case of Noncommercial Programs

While the sample of noncommercial programs used in this study is rather small, one can be reasonably sure that our results are fairly representative of the whole of noncommercial programming. Noncommercial programs appear to be less complex in form than commercial programs and their ratings appear to suffer as a result.

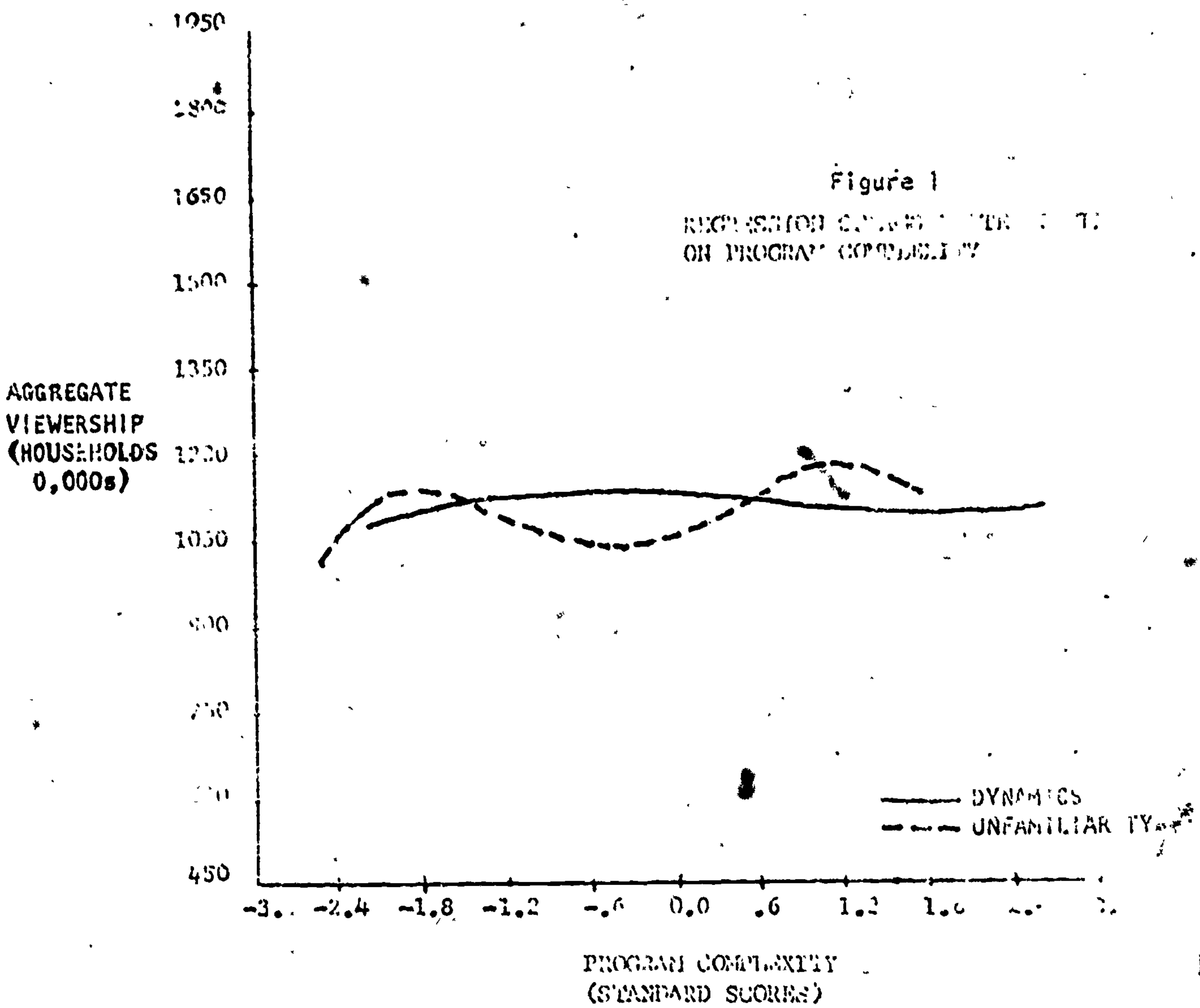
If one objective of noncommercial producers is to reach a fairly large audience, it appears that program form complexity will have to be increased. Programs currently available on noncommercial channels, such as Sesame Street and some segments of Masterpiece Theater, have been high in form complexity and have drawn fairly large audiences. Unfortunately program complexity is likely to be related to production cost.

Individual and Aggregate Measures of Viewership

The results of analyses viewing done previously with individual viewing patterns and in this paper on the basis of aggregate viewership are fairly similar. However, the findings based on ratings are substantially weaker. It is likely that the base of ratings in unduplicated viewership may account for much of this attenuation. It is also likely that this attenuation would have been even stronger had we not used controls for the amounts of viewing in our tests relating to complexity viewing.

In general one would expect that social scientists might find that their hypotheses regarding television viewing may be less strong when ratings data are used. Producers should be careful in projecting likely effects of viewership to production changes when individual viewing patterns are used as a test base. Each of these measures of viewing appears to have a valid purpose, and their interchangeable use may prove dissappointing.

We have several reservations about our data. First, the amount of variance accounted for is small even when the results are very significant statistically. Second, we have not taken into account the effects of program scheduling. Third we have obtained measures of only some aspects of program form. There are several other aspects of program form which we have not yet measured, but which are measurable. We would expect that our predictive power would go up as we add measures of program form and program scheduling.



DYNAMICS

POLYNOMIAL REGRESSION OF DEGREE: 3
PREDICTION EQUATION: $Y = 113.71 - 7.43X - 5.89X^2 + 9.28X^3$

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	F VALUE	SIG. LEVEL
Due to Regr.	3	4.17×10^4	[illegible]	[illegible]
Dev. about Regr.	52	3.72×10^6		

UNFAMILIARITY

POLYNOMIAL REGRESSION OF DEGREE: 4
PREDUCTUIB EQUATION: Y = 110[illegible] + 119.36X [illegible] - 61.[illegible] - 2[illegible]

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	F VALUE	
Due to Regr.	4	$1. \times 10^5$	.47	[illegible]
Dev. about Regr.	51	3.03×10^6		

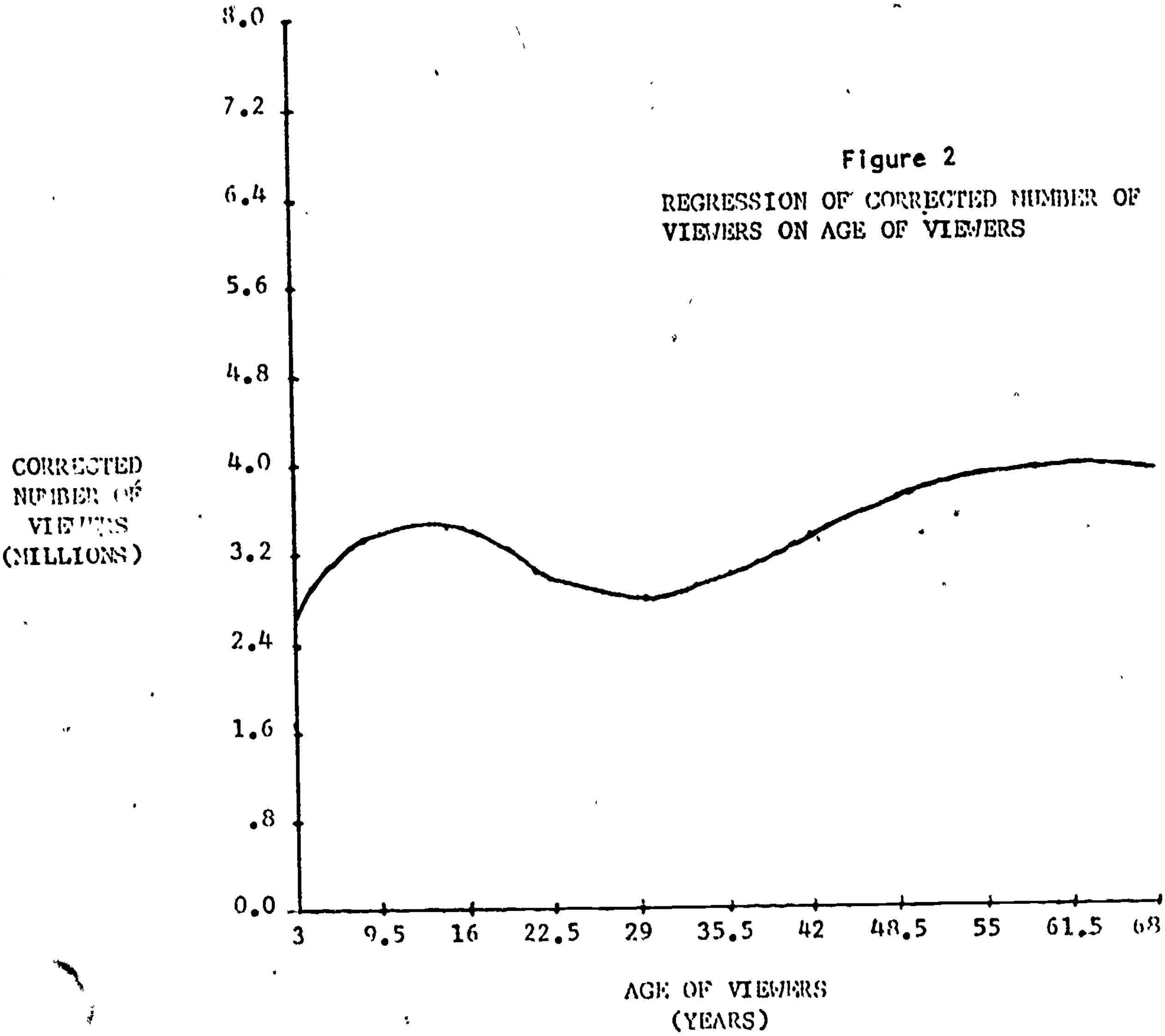


Figure 2

REGRESSION OF CORRECTED NUMBER OF VIEWERS ON AGE OF VIEWERS

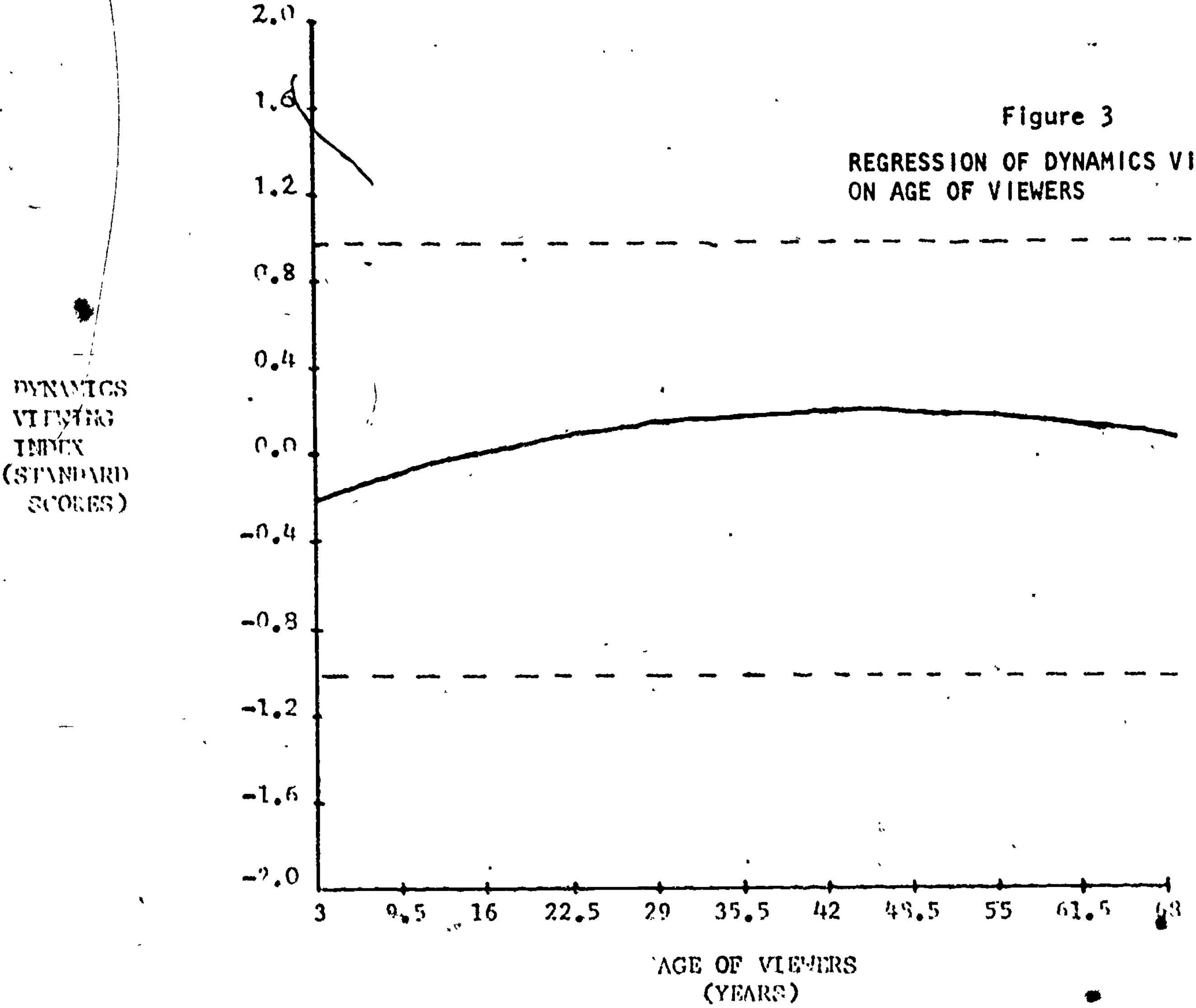
POLYNOMIAL REGRESSION OF DEGREE: 4

PREDICTION EQUATION: $Y = 18394.77 + 3213.16X - 216.03X^2 + 5.2?X^3 - .0? X^4$
(0,000)

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	F VALUE	SIG. LEVEL
Due to Regr.	4	5.0×10^9	6.13	$p < .001$
Dev. about Regr.	387	79.0×10^9		

Figure 3

REGRESSION OF DYNAMICS VIEWING ON AGE OF VIEWERS



POLYNOMIAL REGRESSION OF DEGREE: 2

PREDICTION EQUATION: $Y = -.202 + .015X - .00017X^2$

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	F VALUE	SIG. LEVEL
Due to Reg.	2	4.0366	5.3636	$p < .005$
Dev. about Regr.	389	146.3788		

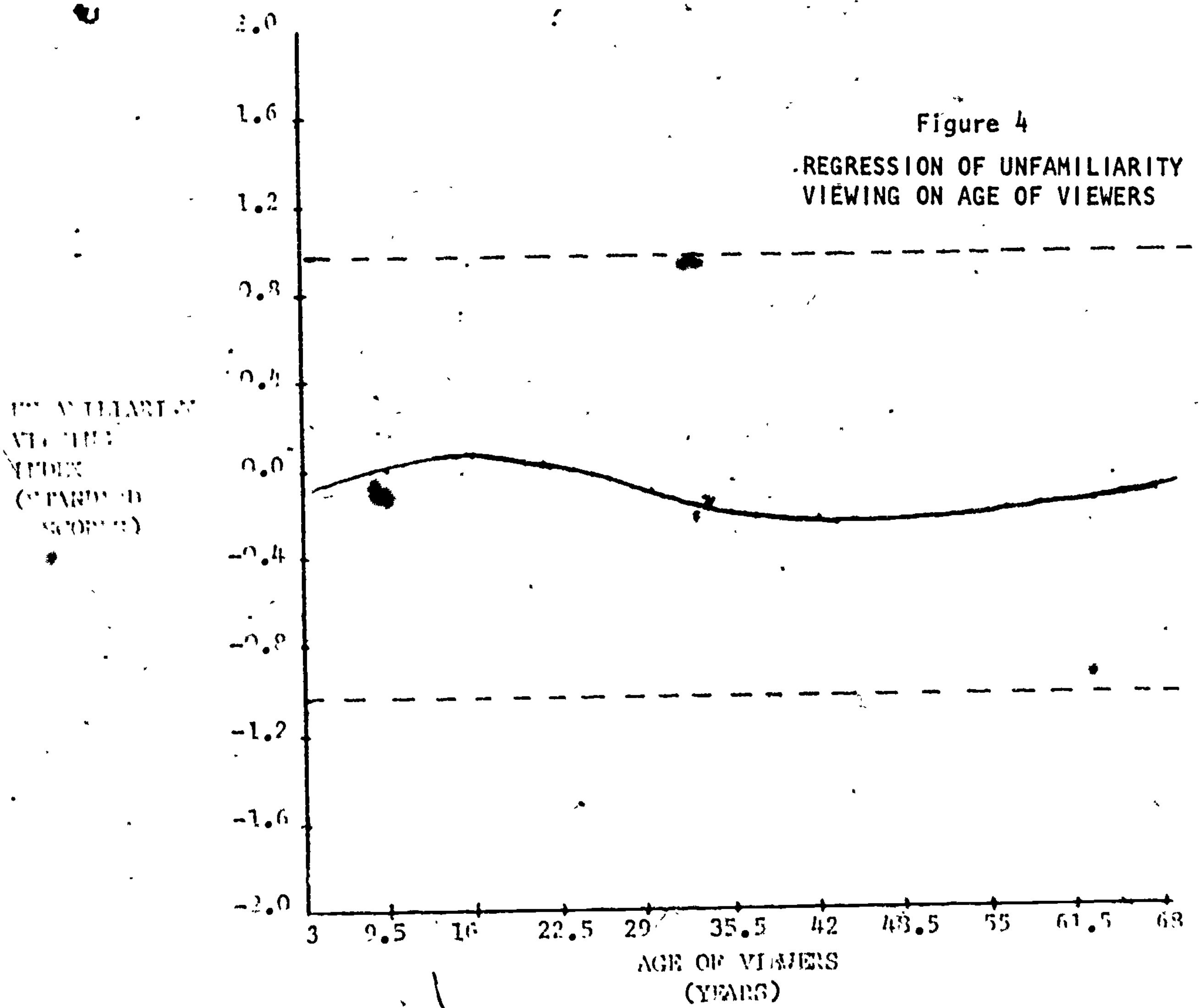


Figure 4

REGRESSION OF UNFAMILIARITY VIEWING ON AGE OF VIEWERS

...L REGRESSION OF DEGREE: 3

...ION EQUATION: $Y = -.132 + .033X - .0014X^2 + .00001X^3$

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	F VALUE	SIG. LEVEL
Due to Regr.	3	3.3384	2.063	$p < .10$
Dev. about Regr.	338	209.2902		

Table 1

Test Statistics for NET Shows

Differences between the mean DYNUFAM scores for NET and commercial TV shows.

Variable	Mean	Stand. Dev.	N	t-value	Significance
Dynamics					
NET	-.5632	1.3379	7	-1.08	n.s.
Commercial	.00	1.00	58		
Unfamiliarity					
NET	-2.5147	1.1141	7	-5.71	p< .005
Commercial	.00	1.00	58		

Correlation between DYNUFAM scores for NET shows and Ratings

	Dynamics	Unfamiliarity
Ratings	.31	.85
(Sign. Level.)	n.s.	p< .02

N = 7

APPENDIX A

NONCOMMERCIAL DYNUFAM SCORES

SHOW NAME	DYNUFAM Dynamics	DYNUFAM Unfamiliarity
French Chef	-3.0302	-2.9488
Firing Line	-1.4176	-3.9037
Advocates	.2181	-2.3547
Black Journal	-.2663	-2.9470
Soul	-.7851	-2.9441
Vibrations	.4076	-2.1868
Masterpiece Theater (Queen Elizabeth)	.9314	-.3180

APPENDIX B

CORRECTION FACTORS FOR VIEWING AGE CATEGORY SIZE*

AGE GROUP	CORRECTION FACTOR
2-5 Years	1/.54
6-11 Years	1/.80
12-17 Years	1/.87
18-24 Years	1/.83
25-34 Years	1/.87
35-49 Years	1/1.26
50+ Years	1/1.73

* Correction factors based on 1970 census data.

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